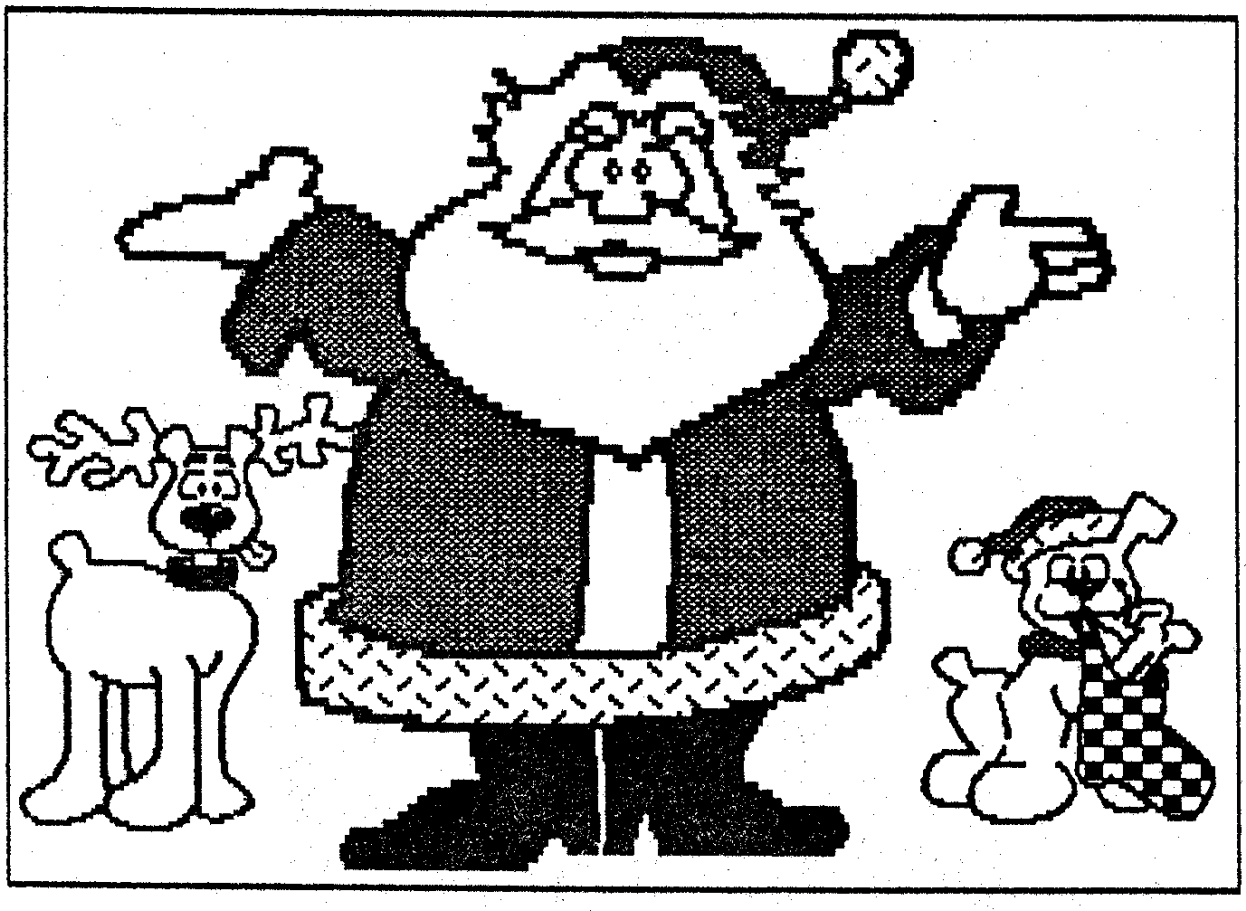
FORMAT

A Magazine from INDUG
For DISCiPLE & PLUS D Users

ISSUE #5 - DECEMBER 1987



Bumper Christmas Issue

INDUG.

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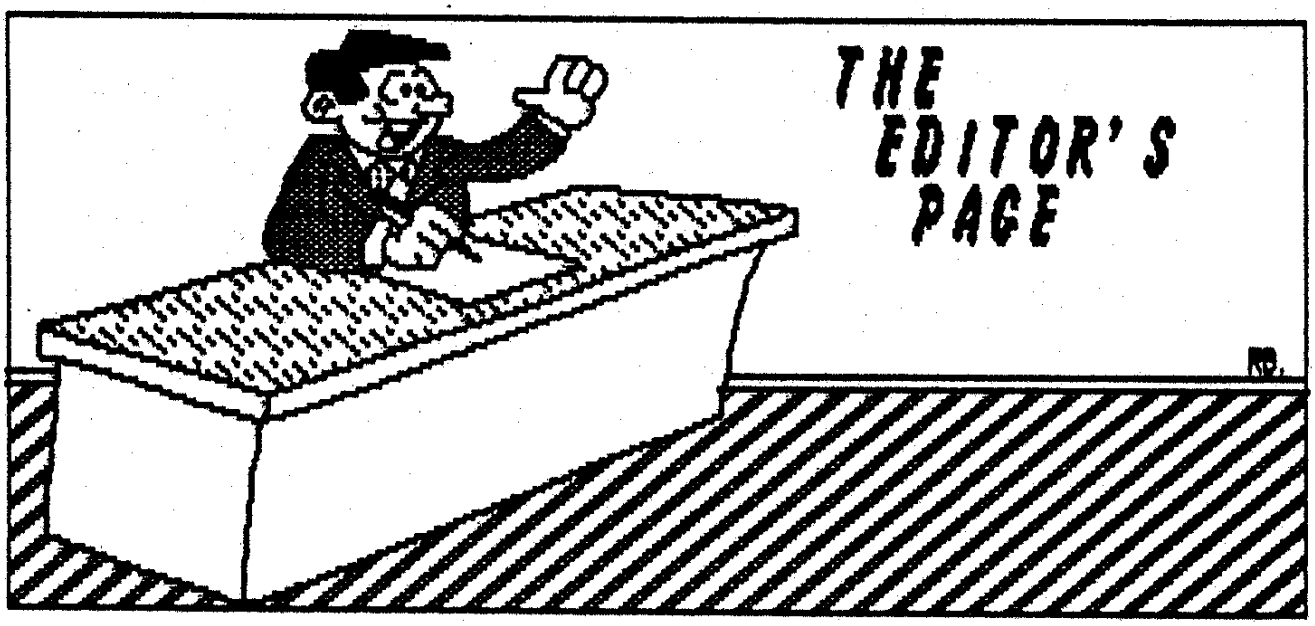


Here it is, our very first Christmas issue, and our largest issue so far. There's something for everyone (I hope) in this issue, with more programs and reviews then ever before.

Thanks to every one who answered my request, last month, for information on the length of time it takes our friendly Post Office to deliver the mail. It may interest you to know that many members reported 5 to 6 days, this seems to be the norm now for 2nd class post (P.O. claims it should be 3 days). But the record stands at 12 days from Gloucester to Kent. Add to this the fact that, as I write, there could be a postal strike at any moment, and you can see my current dilemma. If the post office will accept this months batch I intend to use 1st class in the hope you will all get to read this before Christmas.

Next months issue will be published a bit late because of the Christmas/New Year holiday. The January issue will be sent out 11th January so it should reach you a few days later.

It only remains for me to wish you all -

A VERY MERRY CHRISTMAS

and

A HAPPY NEW YEAR TO EVERYONE

See you next YEAR.

Bob Brenchley. Editor.

DISCiPLE NEWS.

MGT LAUNCH THE PLUS D

The PLUS D hit the streets for the first time just a few days ago and they are selling like hot cakes. Miles Gordon Technology report fantastic interest from all over the world. Their telephone has been jammed with people trying to place orders or requesting details on the new interface. MGT apologise for the bottle neck and say they will have extra lines installed as soon as BT can get round to it.

The PLUS D will receive its first public showing at the ZX Microfair on Saturday 12th December at the New Horticultural Hall Westminster. For those of you who can't get along we will be carrying a full review in the next issue.

For further details contact Miles Gordon Technology at their new address:- Unit 4, Chesterton Mill, French's Road, Cambridge, CB4 3NP. Tel. 0223 311665

AMSTRAD DROP CPC

Amstrad have ceased production of the range of computers they launched as Spectrum beaters. The CPC 464 has not been produced at Amstrads far east factories for some time. But now the CPC 6128 has also ceased production.

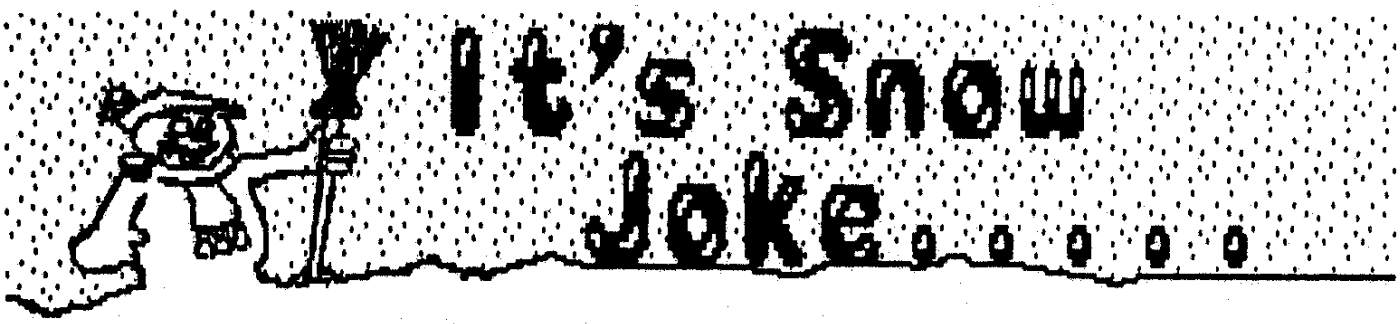
Amstrad are reported to be working on a sixteen bit machine for launch next year and, with the Spectrum+3/+2 at the low end of the market, the CPC has been squeezed out.

SHUSH - IT'S THE SILENT +3

It appears the +3 is having sound problems. Some units shipped in recent weeks will not utter a squeak through the T.V. sound system. This is believed to have been caused by a handful of components being left out in assembly. Still I am surprised anyone found out, well who would buy one anyway?

NETHERLAND USER GROUP

The Netherlands, where there is probably the biggest concentration of DISCiPLE owners outside the UK, now has it's own DISCiPLE club. They publish a newsletter in Dutch which, from the few bits I can read, seems to be well worth having (if you speak Dutch of course). They can be contacted at: Disciple Nieuwsbrief, Ameland 43 B, 1506 ZV ZAANDAM, The Netherlands.



Produce a snow storm on your spectrum with this small routine for the festive season. For those of you without an assembler the routine is given at the end for you to POKE into memory. Why not design a winter scene and then add the snow.

RANDOMISE USR 40000 and you have an instant white Christmas. Press the Space key to stop the routine.

```
 10 ;SPECTRUM SNOW
 20 ;V1.4 - OCT 1987.
 30 ;FOR 48K MODE.
 40 ;(C)1987 INDUG.
 50 ;BY - JON NIXON.
 60 ;
 70 *D+
 80 COUNT  EQU  96
 90        ORG  40000
100 START  EXX
110        PUSH HL
120        CALL A1
130        POP  HL
140        EXX
150        RET
160 A1     LD   HL,45000
170        LD   DE,16384
180        LD   BC,6912
190        LDIR
200        CALL R1
210        LD   A,7
220        LD   IX,GA
230        LD   B,COUNT
240        LD   DE,8
250 AA     XOR  A
260        LD   (IX+0),A
270        LD   (IX+4),A
280        CALL R2
290        LD   (IX+1),A
300        CALL R2
310        LD   (IX+5),A
320        CALL R2
330        LD   (IX+2),A
340        CALL R2
350        AND  1
360        SUB  1
370        LD   (IX+3),A
380        CALL R2
390        LD   (IX+6),A
400        LD   A,1
410        LD   (IX+7),A
420        CALL G1
430        ADD  IX,DE
440        DJNZ AA
450 AC     LD   A,(23560)
460        CP   32
470        RET  Z
480        LD   IX,GA
490        LD   B,COUNT
500        LD   DE,8
510 AD     EXX
520        CALL G1
530 AE     LD   H,(IX+1)
540        LD   L,(IX+0)
550        LD   B,(IX+3)
560        LD   C,(IX+2)
570        ADD  HL,BC
580        LD   (IX+1),H
590        LD   (IX+0),L
600        LD   H,(IX+5)
610        LD   L,(IX+4)
620        LD   B,(IX+7)
630        LD   C,(IX+6)
640        ADD  HL,BC
650        LD   (IX+5),H
660        LD   (IX+4),L
670        CALL G1
680 AG     EXX
690        ADD  IX,DE
700        DJNZ AD
710        JP   AC
720 R1     LD   HL,(23670)
730        LD   (RA),HL
740        LD   HL,(23672)
750        LD   (RB),HL
760        RET
770 R2     PUSH IX
780        PUSH BC
790        LD   IX,RA
800        LD   B,8
810 R3     BIT  7,(IX+3)
820        JR   Z,R4
830        LD   A,(IX+0)
840        XOR  83
```

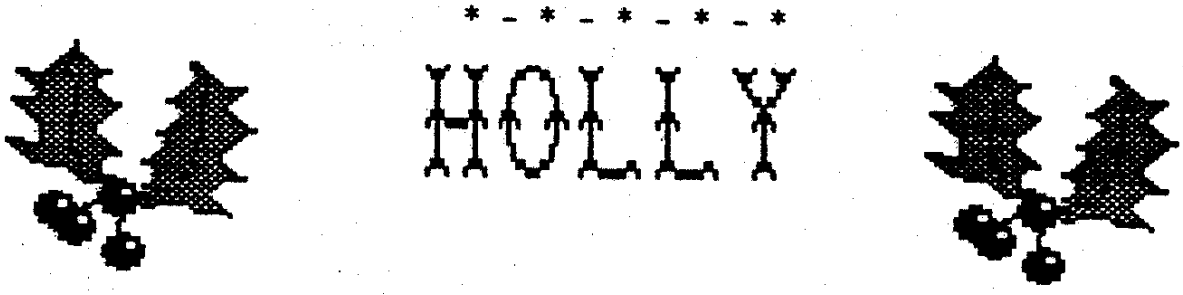
Cont:

```
 850          LD    (IX+0),A
 860          LD    A,(IX+1)
 870          XOR   181
 880          LD    (IX+1),A
 890          LD    A,(IX+2)
 900          XOR   118
 910          LD    (IX+2),A
 920          CCF
 930 R4       RL    (IX+0)
 940          RL    (IX+1)
 950          RL    (IX+2)
 960          RL    (IX+3)
 970          DJNZ  R3
 980          LD    A,(IX+3)
 990          POP   BC
1000          POP   IX
1010          RET
1020 G1       LD    A,(IX+5)
1030          LD    HL,0
1040          CP    192
1050          RET   NC
1060          PUSH  BC
1070          LD    B,A
1080          LD    C,(IX+1)
1090          AND   248
1100          LD    H,0
1110          LD    L,A
1120          ADD   HL,HL
1130          ADD   HL,HL
1140          LD    A,H
1150          OR    88
1160          LD    H,A
1170          LD    A,C
1180          RRC   A
1190          RRC   A
1200          RRC   A
1210          AND   31
1220          OR    L
1230          LD    L,A
1240          LD    A,B
1250          RRC   A
1260          RRC   A
1270          RRC   A
1280          AND   24
1290          OR    64
1300          LD    H,A
1310          LD    A,B
1320          AND   7
1330          OR    H
1340          LD    H,A
1350          LD    A,C
1360          AND   7
1370          LD    C,A
1380          LD    A,8
1390          SUB   C
1400          LD    B,A
1410          LD    A,1
1420          CCF
1430 G2       RLA
1440          DJNZ  G2
1450          LD    B,A
1460          XOR   (HL)
1470          LD    (HL),A
1480          INC   H
1490          LD    A,H
1500          CP    72
1510          JR    Z,G3
1520          CP    80
1530          JR    Z,G3
1540          CP    88
1550          JR    Z,G3
1560          LD    A,B
1570          XOR   (HL)
1580          LD    (HL),A
1590 G3       POP   BC
1600          RET
1610 RA       DEFW  0
1620 RB       DEFW  0
1630 GA       DEFS  256
1640 LEN      EQU   $-START
```

The Basic Version

```
100 FOR I=40000 TO 40399
110 READ A: IF A=999 THEN SAVE D1"SNOW_C"CODE 40000,399:STOP
120 POKE I,A:I NEXT I
400 DATA 217,229,205,72,156,225,217,201,33,200,175,17,0,64,1,0,2
7,237,176,205
420 DATA 218,156,62,7,221,33,133,157,6,96,17,8,0,175,221,119,0,2
21,119,4
440 DATA 205,231,156,221,119,1,205,231,156,221,119,5,205,231,156
,221,119,2,205,231
460 DATA 156,230,1,214,1,221,119,3,205,231,156,221,119,6,62,1,22
1,119,7,205
480 DATA 40,157,221,25,16,203,58,8,92,254,32,200,221,33,133,157,
6,96,17,8
```

```
500 DATA 0,217,205,40,157,221,102,1,221,110,0,221,70,3,221,78,2,
9,221,116
520 DATA 1,221,117,0,221,102,5,221,110,4,221,70,7,221,78,6,9,221
,116,5
540 DATA 221,117,4,205,40,157,217,221,25,16,206,195,150,156,42,1
18,92,34,129,157
560 DATA 42,120,92,34,131,157,201,221,229,197,221,33,129,157,6,8
,221,203,3,126
580 DATA 40,25,221,126,0,238,83,221,119,0,221,126,1,238,181,221,
119,1,221,126
600 DATA 2,238,118,221,119,2,63,221,203,0,22,221,203,1,22,221,20
3,2,22,221
620 DATA 203,3,22,16,207,221,126,3,193,221,225,201,221,126,5,33,
0,0,254,192
640 DATA 208,197,71,221,78,1,230,248,38,0,111,41,41,124,246,88,1
03,121,203,15
660 DATA 203,15,203,15,230,31,181,111,120,203,15,203,15,203,15,2
30,24,246,64,103
680 DATA 120,230,7,180,103,121,230,7,79,62,8,145,71,62,1,63,23,1
6,253,71
700 DATA 174,119,36,124,254,72,40,11,254,80,40,7,254,88,40,3,120
,174,119,193
720 DATA 201,0,0,0,0,32,32,32,32,32,32,188,1,188,207,97,0,244,14
1,243
740 DATA 1,24,208,26,255,224,251,72,1,40,181,150,0,116,1,19,1,24
4,244,51,999
```



Now for another little seasonal program. This one draws random holly leaves on the screen, but no doubt the routine could be modified to produce a more formal pattern.

```
 10 REM HOLLY GRAPHICS.
 11 REM (C)1987 INDUG
 20 LET s=25: LET b=7
 25 PAPER 0: INK 4: BORDER 0: CLS
 30 FOR X=10 TO 150 STEP 50: FOR Y=5 TO 230 STEP 40
 40 PLOT Y,X
 50 LET S=RND*35+15: REM SET SIZE
 60 DRAW S,S,1
 70 DRAW -S/3,-S/5,-2
 80 DRAW -S/2.5,-S/5,-2
 90 DRAW -S/5,-S/3.4,-2
100 DRAW -S/10,-S/3,-2
120 DRAW S/2.5,-S/10,-2
130 DRAW S/3.4,S/5,-2
140 DRAW S/3.4,S/3.4,-2
150 DRAW 0,S/2,-1
160 NEXT Y: NEXT X
```

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GET TOTAL CONTROL OF YOUR DISCS

COMPRISES 3 PROGRAMS

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SAVE £5

- **THE CONFIGURER** This program actually **names** and **numbers** DISCiPLE discs to your requirements. Now disc identification is simplicity itself!
- **THE CATALOGUER** An amazing program that allows you to **catalogue, search, update** and display every program on every disc... **NO typing in**, simply insert all your discs, one at a time into drive 1 and the Cataloguer sorts, collates and displays all programs into numerical order, automatically!
- **THE AUTOLOADER** This program is the real workhorse of this suite of programs. You can **automatically** load, erase, copy, re-name all programs with 2 catalogue display options, and 2 disc facility. You can now **ERASE or RE-NAME up to 15** programs **at one time.** (Ideal for multiple re-naming after a snap shot session). The Autoloader on every disc makes using the DISCiPLE so simple, so easy and such a pleasure to use, that you'll wonder how you could ever have Managed without it!

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When ordering state Drive size & type etc.

DISC-MANAGER

Reviewed

This suite of programs comes on a cassette with minimal information; merely put a formatted disc with your system code recorded on it in disc one, and follow the screen prompts. I first established that it is a 48K suite - this is important, as it is not mentioned on the cassette box. Next, I tried to load it. As one who is always subjected to the law of natural cussedness, particularly in these situations, I watched with some trepidation: I needn't have worried. The files loaded neatly and were neatly transferred onto the disc: only when I'd had my coffee and came back I found I had to turn the tape over and continue (not surprising - there are 20 files - good excuse for another coffee anyway).

Essentially, this suite consists of a loader and three programs which can be autoloaded, and selected one from the other. The first program that I tried was "CONFIGURER". Within this program, the first option you can choose is to have details of your DOS. Whilst most already have this information, it serves as a useful reminder, for you may need to make slight alteration to allow for the different version of GDOS.

You can then go on to configure your discs. This is really the centre of the whole operation, for it enables you to personalise the disc with your own name (this is included in the catalogue, next to the free bytes message which you get on boot-up), it enables you to give a name to the disc, and it allows you to give a number to the disc as well. There is an inbuilt menu of suggestions for disc titles (arcade, adventure, strategy, simulations and utilities) and from menu 2 you have, in addition, the option to choose names for yourself. (As more than 90% of my files are from an assortment of word processors, I guess I'd find this option the most useful). In addition, you can also number the disc. If you have loads of Tasword files or of adventure games, this is also useful, particularly for subsequent features of the program.

There are several further features in the "Configurer" section; for instance you can personalise a whole batch of discs in one go with sequential numbers, you can format new discs from the program merely with one keypress and you can even name and number discs which are already formatted and contain programs.

Finally, "CONFIGURER" creates two catalogue data files and transfers them to your disc. This is important in that it enables the second program, the "CATALOGUER", actually to work.

"CATALOGUER" is a program which will manage and search a database, in this case the catalogue files which have been duplicated and stored on the disc as data arrays. It loads them, updates them, can search for any program name that is input, and can transfer updated files back to the disc.

"AUTOLOADER" is somewhat more than your everyday auto-boot program, rather a file manager. A selection of its abilities are as follows: it will catalogue, load a selected program, erase it, change its name and copy a program. There are also a lot more possibilities listed such as the multiple option which will do multiple erasures or namechanges, and the catalogue display can be confined to just Basic loaders and snapshots, so that you can sort out rapidly the program you want without having to wade through sectors full of code files.

Overall, this suite of programs is beautifully presented with lots of help screens and heaps of pull-down menus, and particularly with a great deal of attention having been paid to nice lettering of assorted sizes, colour and general screen layout. It will not suit everyone (least of all me), but if you are one of these people who likes to be well organised (and I am monumentally haphazard) and who likes to be fussy about keeping your files in order, then it could be very useful. If you are at all unsure about using Basic then DISC-MANAGER takes the strain out of most disc operations.

Overall, this program is not very strong on physical file "shunting", and it definitely will not conveniently do straight disc backups, with or without snapshots. Where it does shine is in file listing: it keeps a directory of what you've got and also keeps track of individual programs, enabling you to find that elusive program immediately. There is a wealth of screen information, although, curiously, none for the printer; perhaps because of the screen dump facilities on the Disciple. Thus it keeps an accurate check on what programs you've got, and immediately shows if that disc your mate has got is one of yours, through the clever personalisation facilities. It is a disc organiser, and by the time that this appears, I expect that the odd bugs I've found will have been ironed out. If it appeals, get it.

GRAPHICS.....8/10	BETTER BYTES,
PRESENTATION ON SCREEN....7/10	10, Spital Terrace,
USE AS UTILITY.....6/10	Gosforth,
INSTRUCTIONS.....8/10	Newcastle Upon Tyne,
VALUE FOR MONEY.....7/10	NE3 1UT.
OVERALL RATING.....7/10	PRICE £14.95

Reviewed by John Wase.

AUTOLOAD

If you are like me and you have discs and discs full of games, programs and utilities then you must have written a menu program to aid finding and loading the program you want.

By now I can hear you all saying 'Oh no! Not ANOTHER menu'. But this one is different, it has a machine code routine which prints on the screen in double height similar to the writing in Uridium, because of this it is just as fast as normal printing. The programs allows for twenty titles on the menu but with small modifications it would be easy to add pages. Below there is a breakdown of the program which also tells how to use it yourself. The program will work in 48K or 128K mode, but should be entered in 48K mode.

PROGRAM BREAKDOWN

10 This is where the machine code is poked so it is very important to enter at least 110 Xs.
20 Clears the screen ETC..
30 Gosubs to the machine code poking routine. It will return immediately if the code is already there.
40 Defines the function which calls the machine code. Variables are read by the machine code routine by reading the function set-up table. This is simple but space prevents me from breaking the code down. A$ = string to print, X and Y = screen co-ordinates and V and W = the two colours for printing.
50 This sets up four variables to signify the program type: S= 48K Snapshot, B=Basic, C=Machine code, K=128K snapshot.
60 Prints disc title. I prefer to have this in the centre of the screen in red and yellow.
80 This is the menu data. This is what is displayed on screen.
90 Two stars terminate the menu data. These must be included.
110 This is the loading data for the actual programs on disc. These must match the saved names of the programs followed by the program type variables. Wildcards may be used.
120 Set up dimensions.
130+ Read the menu data and find out how many programs.
170 Read LOAD data.
180+ Print out the menu.
250 Wait for key press.
260 If Z is pressed then the program loads the AUTOLOAD program. This allows you to change disc.
270+ Check for correct key range & LOAD chosen file according to type.
360 Create the machine code in line 10. You should break into the program and enter GOTO 999 when run for the first time so that the code does not need to be poked again.
999 Saves the program.

AUTOLOAD The Program

```
 10 REM (110 off X) About 3.5 lines, used to hold machine code.
 11 REM
 12 REM By Andy Porter November 1987.
 13 REM for any version of GDOS.
 14 REM
 20 PAPER 0: INK 0: BRIGHT 1: FLASH 0: CLS : BORDER 0
 30 GO SUB 350
 40 DEF FN H(A$,X,Y,V,W)=USR 23760
 50 LET S=0: LET B=1: LET C=2: LET K=3
 60 LET L=FN H("128K GAMES DISC 2",7,0,2,6): REM disc title.
 70 REM FULL NAME DATA HERE
 80 DATA "AMAUROTE","GLIDER RIDER","NEVER ENDING","TAU CETI"
 90 DATA "**"
100 REM LOAD DATA GOES HERE
110 DATA "AMAUROTE",K,"GLIDER128K",K,"N.E.STORY",K,"TAU CETI",K
120 RESTORE 80: DIM A$(20,14): DIM L$(20,10): DIM T(20)
130 LET NUM=1
140 READ B$: IF B$="**" THEN GO TO 160
150 LET A$(NUM)=B$: LET NUM=NUM+1: GO TO 140
160 LET NUM=NUM-1
170 FOR N=1 TO NUM: READ L$(N),T(N): NEXT N
180 LET A=0: LET D=2
190 FOR N=1 TO NUM
200 LET Q=INT (RND*7)+1: LET E=INT (RND*7)+1: IF Q=E THEN GO TO
200
210 LET L=FN H(CHR$ (64+N)+":"+A$(N),A,D,Q,E)
220 LET D=D+2
230 IF N=INT ((NUM+1)/2) THEN LET A=16: LET D=2
240 NEXT N
250 PAUSE 0: LET B$=INKEY$
260 IF b$="z" OR b$="Z" THEN LOAD d*;"AUTOLOAD"
270 IF CODE B$>96 THEN LET B$=CHR$ (CODE B$-32)
280 IF CODE B$-64>NUM OR CODE b$<64 THEN GO TO 250
290 LET choice=CODE b$-64
300 IF t(choice)=0 THEN LOAD d*;l$(choice)s
310 IF t(choice)=1 THEN LOAD d*;l$(choice)
320 IF t(choice)=2 THEN LOAD d*;l$(choice)CODE
325 IF t(choice)=3 THEN LOAD d*;l$(choice)k
330 STOP
350 REM CREATE MACHINE CODE
360 IF PEEK 23760=62 THEN RETURN
365 RESTORE 380
370 FOR N=23760 TO 23864: READ A: POKE N,A: NEXT N: RUN
380 DATA 62,2,205,1,22,42,11,92,1,4,0,9,94,35,86,35,213,86,213,1
4,7,9,86,12,9,94,213,9,86,9,94,193,241,225,245,126,229,197,213,1
11,38,0,41,41,41,1,0,60,9,237,91,123,92,6,8,126,18,44
390 DATA 19,175,18,19,16,247,209,193,62,22,215,121,215,120,215,6
2,16,215,122,215,62,144,215,62,22,215,121,60,215,120,215,4,62,16
,215,123,215,62,145,215,225,241,35,61,32,186,201
999 SAVE d*"AUTOLOAD" LINE 20
```

You could change the name of the program (in line 999) but remember it must start with "AUTO" if you want if to auto-run when you 'boot' your disc system.

Andy Porter.

COMPETITION WORDSQUARE

H G L M X S P E C T R U M Z N E E P A C S E
I L N I A B J Y Z T U P N I O G A U D K F W
O W W I B R I X T T R O T C E S A A M P I K
G O E D K G G N R A D R E T N I R P D G L Y
B R U V I J H O A P M K I L O B Y T E Z E H
D D T L I I S O R R M R G P G P M M A F N M
D P H A C R B I E P Y K O L E K O P L K A Q
S R E S S S D L F L K K F F J H J L K C M E
S O S S A C Y C N N P Q B D N E K C B I E G
N C A E A Q A S S L O I W B D E N S I T Y I
A E R M F E C T T I R D C C U P T U I S A N
P S E B Y O P Y A E D R R S B B Q Y Y Y C T
S S Y L D N I R Y L M F J O I F G D B O B E
H O I E V O X O N R O M Q M G D I K C J Q R
O R N R O S E M H U U G I S T Q O A E B V F
T G D X I P L E F Q U C U R C R E J L R M A
N X U F O E C M H J R S G E E R O C L M F C
B Z G C I S A B I O W G J A J K E T U S E E
H F V H E X A D E C I M A L F W E E I R H Z
P D M V H S I N C L A I R X J F I E N N B G
W K C A R T D V R E T U P M O C U G P W O L
Q N T V T I J H S S P D R A O B Y E K B H M

INDUG CHRISTMAS WORDSQUARE

SINCLAIR	COMPUTER	DISCIPLE	CATALOGUE	DISCDRIVE
INTERFACE	WORDPROCESSOR	JOYSTICK	FORMAT	HEXADECIMAL
DENSITY	SNAPSHOT	PRINTER	EPSON	TRACK
MONITOR	FILENAME	MEMORY	KILOBYTE	ASSEMBLER
KEYBOARD	INDUG	SYSTEM	PROGRAM	SPECTRUM
ROM	POKE	BYTE	CODE	BASIC
INPUT	SECTOR	BINARY	ASCII	PIXEL
MICRO	ESCAPE	PEEK	SCREEN	ERASE

40 words, all related to the DISCiPLE and Spectrum are hidden in the grid. Words run FORWARD and BACKWARD, UP and DOWN, even DIAGONALLY, in fact in all 8 directions. SPECTRUM is circled to give you a start so there's just 39 left to find and circle.

Oh yes. Before I forget, you could win a prize for a correct solution. Send your completed entry (photo copy accepted, but only 1 entry per member allowed) in an envelope marked 'WORDSQUARE', to our usual address. To arrive no later than first post on Monday 1st February 1988. The first 3 correct entries drawn from the bag on that day will each receive 10 DS/DD discs, complete with library case (please indicate which size discs you want). Winners will be notified by post, as usual in these things, the Editor's decision is final.

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INCREMENTAL BACKUP UTILITY

by: Nev Young.

Have you ever had the problem that your have just got out you favourite games disc, or the disc with all your really important letters, only to get the dreaded message: **0:2 Sector data lost** To a sensible user this presents no problem at all, just recover the disc from the backup copy. (Of course we all have backup copies don't we). You don't ? Ah so you have the other well known problem: SAVE d1"*" TO d2 doesn't copy snapshots or opentype files and thats what you really want.

Of course, if you have twin drives, you could use the trusted "FORMAT d2 TO d1" but that can take forever and anyway for a short time your backup is completely erased. What you really need is a program that will copy files of any type from one disc to another. Preferably only copying those files that have been changed since the last backup, and can be used on systems with only one disc drive. Now I wonder where you might find something as useful as that. Read on!

Here is a program that removes all those excuses for not having a backup. It will copy any type of file, and can be configured to work on single and double density drives, 40 or 80tracks, 1 or 2 drives. The program is called 'IBU' for Incremental Backup Utility. IBU is in two parts, a BASIC program and the almost inevitable machine code. It works because of an interesting feature of the disciple, that is how the disciple records onto a disc which sectors are in use and which are free.

I shall now expand on some of the things in D Kennedy's article in the September 87 issue of FORMAT. The disciple records the information about a file in the disc directory (the first 40 sectors of the disc). The format of this header is as follows:

File Type 1 byte
File Name 10 bytes
Number of Sectors 2 bytes
Start Track 1 byte
Start Sector 1 byte
Sector Map 196 * 8 bits
File Type 1 byte
File Length 2 bytes
Memory Start Address 2 bytes
Auto Start Address 2 bytes

These are all fairly easy to understand except the 196 bytes of the Sector Map. For each bit is equal to one sector used by this file and not only that but its position in the sector map shows which sector is used. eg BIT 0 of the first byte of the map is the 1st sector after the end of the directory ie track 4 sector 1. and bit 4 of byte 3 = Tr6,Se1 (remember bits are counted right to left and the right most bit = 0) . You should now see that if you read all the file headers and do a logical OR of all these map bits the bits that are not set are the free sectors. This saves all that messing around with available chains and free lists. What it does mean is we can find out where on the disc each part of any file is located. Another useful feature is that if you work out the track and sector for the last byte in the map you see it refers to a track far in excess of any drive. Remember there are no tracks on the disc between track 79 and 128 (or 39 and 128 for 40 track drives) but the last sector on side 1 and the first sector on side 2 have adjacent bits set in the map.

Sorry if you found that a bit heavy, but the main point is this whenever a file is written to the disc the disciple software will always leave byte 196 of the map = 0 as no file can be in that area of disc. So if we change it to 255 we could tell if that file has been re-written. This is precisely what the following program does.

O.K. so lets get started on the basic program, part 1 is given this month with part 2 to follow in the next issue.

IBU The Basic Program.

```
  1 GO TO 9000
  5 DEF FN p(n)=PEEK n+256*PEEK (n+1)
  6 DEF FN c(n)=INT (n/10)
  7 DEF FN s(n)=1+n-10*FN c(n)
  8 DEF FN t(n)=FN c(n)+(128-maxtrack)*(FN c(n)>=maxtrack)
 10 FOR n=780 TO 820: PRINT FN t(n): NEXT n
100 REM set data vars
104 REM make POKE @ easy
105 LET dp=664:
110 LET n=65500
115 LET n=n+2
120 LET clrstart=FN p(n)-dp
125 LET n=n+2
130 LET clrend=FN p(n)-dp
135 LET n=n+2
140 LET clrmem=FN p(n)
145 LET n=n+2
150 LET base1=FN p(n)-dp
155 LET n=n+2
160 LET base2=FN p(n)-dp
165 LET n=n+2
170 LET comp1=FN p(n)
175 LET n=n+2
180 LET mapaddr=FN p(n)-dp
185 LET n=n+2
190 LET mapstore=FN p(n)-dp
195 LET n=n+2
```

```
 200 LET mapbuild=FN p(n)
 205 LET n=n+2
 210 LET next=FN p(n)
 220 LET bufferstart=30000
 230 LET mcodestart=65000
 240 LET sectlength=256
 250 LET maxtrack=80
 260 LET sourcedisc=1
 270 LET destdisc=2
 280 LET sides=2
 285 LET density=2
 290 LET fcount=0
 295 LET scount=0
 298 DIM d$(40)
 299 RETURN
 500 REM set micro vars
 510 POKE @clrstart,bufferstart
 520 POKE @clrend,mcodestart-1
 530 POKE @mapstore,mcodestart-1-sectlength
 540 POKE @base1,bufferstart
 550 POKE @base2,bufferstart+40*sectlength*density
 590 RANDOMIZE USR clrmem
 599 RETURN
 600 REM load source directory
 610 LET buff=bufferstart
 620 FOR n=0 TO 39
 630 LET t=FN t(n)
 640 LET s=FN s(n)
 650 LOAD @sourcedisc,t,s,buff+n*sectlength*density
 660 NEXT n
 699 RETURN
 700 REM change discs
 710 IF sourcedisc<>destdisc THEN RETURN
 720 PRINT#0;AT 0,1; FLASH 1;"Change discs then press any key"
 730 PAUSE 0
 740 PRINT#0;AT 0,1;" ",,
 750 RETURN
 800 REM compare directories
 810 FOR n=0 TO 39
 815 LET dir1=bufferstart+n*sectlength*density
 816 LET dir2=bufferstart+40*sectlength*density
 820 LET t=FN t(n)
 830 LET s=FN s(n)
 840 LOAD @destdisc,t,s,dir2
 850 POKE @base1,dir1
 860 POKE @base2,dir2
 870 IF USR comp1 OR NOT PEEK (dir1+210) THEN GO SUB 7000
 880 IF density=1 THEN GO TO 990
 883 LET dir1=dir1+sectlength
 886 LET dir2=dir2+sectlength
 890 POKE @base1,dir1
 900 POKE @base2,dir2
 910 IF USR comp1 OR NOT PEEK (dir1+210) THEN GO SUB 7000
 990 NEXT n
 998 PRINT
 999 RETURN
1000 REM update dest dir
1010 PRINT "copying directory"
```

```
1100 FOR n=0 TO 39
1110 IF d$(n+1)<>"c" THEN GO TO 1190
1120 LET t=FN t(n)
1130 LET s=FN s(n)
1140 LET dir1=bufferstart+n*sectlength*density
1150 POKE dir1+210,255
1155 IF density=2 THEN POKE dir1+210+sectlength,255
1160 SAVE @destdisc,t,s,dir1
1170 LET scount=scount+1
1190 NEXT n
1200 REM update source dir
1210 GO SUB 700
1220 FOR n=0 TO 39
1230 IF d$(n+1)<>"c" THEN GO TO 1280
1240 LET t=FN t(n)
1250 LET s=FN s(n)
1260 LET dir1=bufferstart+n*sectlength*density
1270 SAVE @sourcedisc,t,s,dir1
1280 NEXT n
1290 RETURN
4000 REM copy the data
4010 PRINT "Copying data"
4020 REM how may sectors can I load into memory ?
4030 LET max=FN p(mapstore+dp)
4040 LET max=max-bufferstart
4050 LET max=INT (max/(sectlength*density))
4060 DIM z$(max,2)
4100 REM load sectors
4110 LET n=0
4120 IF n>=max THEN GO TO 4200
4130 LET ns=USR next
4140 IF ns=65535 THEN GO TO 4200
4150 LET t=FN t(ns)
4160 LET s=FN s(ns)
4170 LOAD @sourcedisc,t,s,(bufferstart+n*sectlength*density)
4180 LET z$(n+1,1)=CHR$ t
4185 LET z$(n+1,2)=CHR$ s
4190 LET n=n+1
4199 GO TO 4120
4200 REM copy data to destdisc
4210 GO SUB 700
4220 FOR m=1 TO n
4230 SAVE @destdisc,CODE z$(m,1),CODE z$(m,2),(bufferstart+(m-1)
*sectlength*density)
4240 LET scount=scount+1
4250 NEXT m
4260 GO SUB 700
4270 IF ns<>65535 THEN GO TO 4100
4999 RETURN
7000 REM build sector map
7010 LET d$(t*10+s)="c"
7020 IF NOT PEEK dir1 THEN RETURN
7030 IF fcount THEN GO TO 7050
7040 PRINT "Selected file(s)"''
7050 LET fcount=fcount+1
```

Thats all there's room for this month, next month I will finish off the Basic program and explain how it works.

THE HELP PAGE

Problems with your DISCiPLE? Dont worry, write to the HELP page Remember to quote your membership number and leave the problem to us.

OPEN FILES FROM M/C

How can I write to an OPENTYPE file from machine code? I've tried using a combination of the HOOK CODES/COMMAND CODES given in the manual but to be honest I haven't a clue. The file will be opened from Basic for convenience.

C.Sharpe. Aldershot.

You don't need a hook code to write to a file, as far as the Spectrum is concerned an OPENTYP file is treated just like any other Stream. If the file is opened from Basic, then within your machine code you attach the Spectrums output to your selected stream by placing the stream number into the accumulator and calling the Spectrum ROM routine. So if you OPEN a file as number 4 the code would look like this:

```
LD A,4 : CALL 5633 (1601H)
```

Now load the character you want to send into the A regester and print it to the channel using the RST.

```
LD A,n : RST 10
```

That's all there is to it.

- - - - - - - - - -

TASWORD +2

I recently purchased the DISCiPLE interface to make the running of TASWORD PLUS 2 on my Spectrum+2 faster. I understood from reading several brief articles in the computing press that the interface would accept Microdrive syntax. However I can't get the customised program to save to disc, it comes back with 'Interface 1 not present'. Help, how can I get it working.

S.Szubert. Watford.

The DISCiPLE is fully compatible with both the Basic command syntax and the machine code 'HOOK' codes provided by Interface 1. Alas Tasman did not stick to the rules when they wrote TASWORD 3/128/+2, they made several direct calls to the Interface 1 ROM. Therefore their program will not work with anything except Interface 1. Do not dispair though, a conversion program has been developed by Ronnie Simpson which converts Tasword 128/+2 or Tasword 3 for the DISCiPLE. His address is: R.Simpson, 250 Leighland, Pollok, Glasgow, G53 5AR. The price is ¢5.00 for a tape which coves all the above versions of Tasword.

More from the HELP PAGE next month..

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BACK ISSUES

For members who have missed earlier issues of FORMAT we have now introduced, by popular demand as they say, a back-issue service. The cost is 60p per copy (80p overseas). Your copies will be sent out as soon as possible but, in order to keep printing costs within reason, it may take up to 21 days for us to dispatch.

Available Issues

Issue 1 - August 1987.
Issue 2 - September 1987.
Issue 3 - October 1987.
Issue 4 - November 1987.

QUALITAS PLUS.
The Last Word In Printing

Qualitas Plus is an upgrading of its predecessors, Qualitas 2 and Qualitas 3, which were prepared for Tasword 2 and 3 respectively. For those unfamiliar with Qualitas, the program is, as its author describes it, a PRINT ENHANCER.

Provided one has a printer allowing line-feeds of less than 1/72 inch (almost certain except for the most basic ones) Qualitas provides the following facilities: NLQ (Near Letter Quality), at least five extra business fonts, equal space justification and proportional character widths if required, and a font editor for altering the design of individual characters (e.g. foreign accents) or indeed whole fonts, and saving the results.

The use of extra memory space inevitably involves some sacrifices. The old Qualitas rendered unavailable all the control codes except for emphasized print and underlining. Qualitas Plus, brings the following improvements: 1) the availability of enlarged and condensed print, superscript and subscript and a new facility of double height. 2) more than one font is accessible in the one text, the alternative font(s) being activated by a control code symbol; 3) more fonts are available by purchasing additional software at a modest cost (three packs at £5.95 each); 4) the program is no longer limited to Tasword 2 and 3 but can be used also with The Last Word and there is a Stand-Alone version. 5) Finally, the font editor is now much more flexible. To give but one example, the drawing of a French accented character, say an "e" acute, one calls up "e", defines the character to which it is to be posted, calls up the "host" character and there, the "e" is waiting with nothing more to be done than draw the acute accent.

Those who already enjoy NLQ still have a very good reason to acquire Qualitas - because of its fonts. They are not as obviously ornamental as the Tasprint fonts because, in the author's words, they are for business use. They are each carefully designed and drawn and, at least in my view, are more distinguished than the pica, elite, italic and NLQ fonts offered by most dot matrix printers.

How does one get Qualitas working? The package consists of instructions (sixteen pages of them) and a cassette with the Editor, Qualitas loader, Customiser and the Fonts. No advanced knowledge of computing is needed, merely an ability to exercise care in reading and following instructions. In general, what one

does is to load the custom program, follow the prompts relating to word processor, interface, type of printer and finally use the "Check codes" option as necessary. With reasonable luck and with an Epson type printer, all that may be necessary is to change the linefeed from 1/216 to 2/216 by changing 27 51 1 to 27 51 2 (if one's print is too dotty) and check whether the printer Auto-linefeed is on or off. On exercising the "Ready to save" option, a block of bytes called "qcode" is saved.

Alterations are made to the Basic of one's word-processor, quite a lot in Tasword 2, and certain of the word-processor's arrangements for printer control codes have to be adjusted for the purpose of switching on and off Qualitas itself, double-height and alternative fonts. This completes customization.

One useful piece of information has been given by the author which is not in the instructions; one can change from 1/216 to 2/216 very quickly by simply poking 54794 with 2 and resaving. DISCiPLE disc users not employing any interface other than the DISCiPLE printer outlet - and therefore not covered by the menu of interfaces - will be advised what to do by the author if they ask for it when ordering.

It is hoped that, in the near future, the menu of printer interfaces will be extended to include the DISCiPLE printer port. Incidentally, the editor program is also intended for customization before saving and DISCiPLE disc users should not forget to place POKE @ 6,1 in line 701.

On the technical side, Qualitas operates by switching the printer into bit-image graphics mode, using very small linefeeds and making two passes rather like Tasprint or NLQ. A great deal of data is sent to the printer and, with some printers the printing can be very slow. But this is reasonably comparable with the slower speed one expects with NLQ. If your printer has a large buffer then life can be a lot easier.

Qualitas Plus, in my view, is a first rate program for those who take a pride in their printing but who have little in the way of computing expertise. The author of the program provides a very good back-up service and he is both tolerant and intelligible to greenhorns like myself.

This must surely rank as one of the classic programs available for the Spectrum range of computers and, at less than £11, it is a remarkable buy.

GRAPHICS.....N/A
PRESENTATION ON SCREEN....6/10
USE AS UTILITY.....9/10
INSTRUCTIONS.....8/10
VALUE FOR MONEY.....9/10
OVERALL RATING.....9/10

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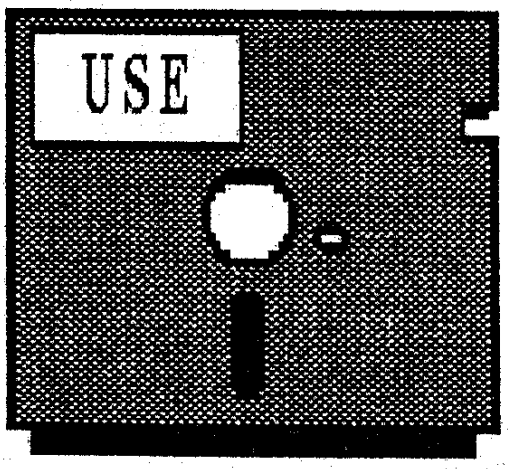
Reviewed by I.A.G.ROSS.



USERS SOFTWARE EXCHANGE

The User Software Exchange, or USE for short, provides DISCiPLE and PLUS D owners with a growing range of software for their systems.

Here is our monthly list of software for sale to INDUG members. The software is supplied on tape, for easy transfer to any format/size of disc, thus keeping costs as low as possible.

Each tape, which may contain from 1 to 4 programs, costs £3.95 or £4.95 including airmail postage for overseas members. Instructions are supplied where needed and all tapes are professionally recorded.

Tape No	Title	Program Description
T001	LCOPY	Routines to replace the GDOS printer dump routines. Enables Epson compatible printers without Esc * to be used with both SCREEN$ 1 & 2.
T002	MULTI-POKE	Program to display and edit SNAPSHOT files. Full facilities for entering published POKEs i.e. Infinite Lives etc. Makes use of printer if attached.
T003	G-HACKER	A graphic investigator. Look inside commercial programs, find the Sprites and pictures. Works in 48K mode but will handle many 128K programs.

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Watch out for more software in next months issue.

P.S. We urgently need more software, send your latest creation for evaluation, it may be worth more than you think.

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